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PATENT APPLICATION

Applicant: Robert Norman Hurst

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Examiner: Shawn S. An

Title: FRAME-ACCURATE SEAMLESS SPLICING OF INFORMATION STREAMS

BRIEF ON APPEAL

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The following appeal brief is submitted pursuant to a Notice of Appeal filed on September 2, 2003 and received by the Patent Office on September 4, 2003.

REAL PARTY IN INTEREST

The real party in interest is the Sarnoff Corporation.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences that directly affect, or are directly affected by, or have a bearing on the Board's decision in the pending appeal are known to the Appellant, Appellant's legal counsel, or the Assignee.

STATUS OF CLAIMS

Claims 1-24 stand under final rejection, from which rejection this appeal is taken.

STATUS OF AMENDMENTS

A "Response under 37 C.F.R. §1.116" was submitted after a final office action dated May 30, 2003. No claims were impacted by that response.

SUMMARY OF INVENTION

The present invention generally relates to splicing MPEG and MPEG-like transport streams together.

Video content is usually made available as a sequence of image frames. For example, video content is often sent at 30 image frames per second. Each image frame can be converted to a bit-mapped digital representation. However, since the number of bits required to produce one bit-mapped image frame is rather large, a bit-mapped representation of an entire movie would be huge. Furthermore, sending such a bit-mapped movie from a source, such as a television studio, to a viewer would require an extensive memory, a large transmission bandwidth, and high-performance transmitters and receivers. Because of such issues, video content is usually digitally compressed using agreed upon algorithmic techniques to form more efficient digital representations than bit-maps.

Currently, digital representations of video content in accord with Moving Pictures Experts Group (MPEG) standard MPEG 2 are widely used, reference page 1, lines 11-20. The MPEG 2 standard is based on the fact that there is usually little change in video content from one image frame to the next. Thus, after sending one complete image frame, the next image frame can be created by predicting the next image frame and sending only the changes from the previous image frame. The complete image frame is called an I-frame, while the predicted image frame is called a P-frame. A P-frame can be based on changes from either an earlier I-frame or an earlier P-frame. The group of image frames between one I-frame and the next is called a group of pictures (GOP). Additional efficiency is obtained by using a bidirectionally predicted coded frame based on both previous and subsequent frames. The bidirectionally predicted coded frame is called a B-frame and it can be based on a previous or subsequent I or P-frame. P-frames are more efficiently compressed than I-frames,

while B-frames are more efficiently compressed than P-frames. Thus, a video sequence can be sent as a streamed sequence of GOPs that are each comprised of I, P, and B-frames. That video sequence is referred to as a transport stream. See page 1, lines 21-24.

It is important for information providers such as television studios to be able to concatenate or splice transport streams together in a substantially seamless and frame accurate manner. "Frame accurate" means that splices occur precisely at selected frames, regardless of the frame types of the spliced frames (e.g., I, P, or B frames). "Seamless splice" implies that a splice results in a continuous, valid MPEG stream. A frame accurate, seamless splice is advantageous not only because it produces a smooth image but because it can preserve an exact number of frames see page 1, lines 24-34. A commercial of 900 video frames can be smoothly spliced into a presentation to provide a commercial that is exactly 900 frames long, and then the presentation can smoothly start anew from where it stopped.

Because P and B-frames are predictive it is not possible to randomly splice one transport stream to another. For example, a B-frame might need a subsequent P or I frame for proper decompression. Without proper decompression a broken image and inaccurate frame counts can result. To prevent this, prior art splicing typically decompressed and decoded video streams to the image frame level, spliced, and then recoded and recompressed the spliced image. While effective, it is computationally difficult to do, particularly in real-time. Furthermore, since each splice was unique all splices required that all of the steps of decompressing, decoding, splicing, recoding, and recompressing be performed. See, page 2, lines 1-5.

The present invention enables frame accurate, seamless splicing at the transport level using minimal decoding. An initial step is identifying a frame, either an in-frame or an out-frame within a transport stream. Additionally, splicing is performed in a manner that forms "adaptors" that enable any last frame from one transport stream to be spliced with any first frame of any other transport stream, see "Summary of the Invention," starting on page 2. An out-point adapter comprises an initial portion of a transition stream that terminates in a particular out-point condition. An in-point adapter comprises

a remaining portion of the transition stream that begins with a corresponding particular in-point condition. The terminating condition of the out-point adapter and the initial condition of the in-point adapter are compatible such that any in-point adapter may be concatenated to any corresponding out-point adapter to effect a splice. See, page 3, lines 1-7. The present invention reduces the computational difficulty of splicing since decoding is only required around the identified frame and re-encoding is only required at the decoded portion so as to form an adapter.

Specifically, one important aspect of the present invention is forming splice point adaptors for out-frames (end frames to be spliced to in-frames) in a transport stream. Another important aspect of the present invention is a method of forming splice point adaptors for in-frames (beginning frames to be spliced to end-frames) in a transport stream. Another important aspect of the present invention is a method of forming splice point adaptors for both out-frames and in-frames of a transport stream (forming both an out-frame adaptor and an in-frame adaptor on a transport stream splice point). The principles of the present invention enable splice point adaptors to be formed on any type of frame by decoding only a relatively small portion of the transport stream. See "Summary of the Invention," starting on page 2.

As suggested in MPEP 1206, Appellant now reads one of the broadest appealed claims on the specification and in the drawings. However, it should be understood that the appealed claim may read on other portions of the specification or on other figures.

More specifically, one embodiment of the invention is a method of generating a splice point adaptor, specifically an out-point adaptor 415 (see Figure 4). The steps of that method are shown in Figure 12. An out-frame 410 of a transport stream (410, 420) is identified at the transport stream level. That out-frame is the last frame that is to be saved. A portion of the transport stream, including the out-frame, is decoded, step 1215. The decoded portion is then re-encoded at step 1220 to form the out-point adapter 415. The out-point adapter has a predetermined terminating out-condition. (See Appellant's specification, page 26, line 4 to page 27, line 17, and Figures 4 and 12).

For the convenience of the Board of Patent Appeals and Interferences,

Appellant's claim 1 (one of the broadest independent claims) is presented below in claim format.

1. A method for generating a splice-point.adapter, comprising the steps of:
identifying (step 1205) at least one out-frame (410-OUT) within a transport stream (410), said out-frame representing a last frame of said transport stream to be included in a spliced transport stream (430);
decoding (1215), for each identified out-frame, a respective portion (410-TRAN to 410-OUT) of said transport stream including said out-frame; and
re-encoding (1220) each decoded portion of said transport stream to produce a respective out-point adapter (415), each of said out-point adapters including a predefined terminating out-point condition (415-OUT-COND).

ISSUES

Whether claims 1-2, 6, 9-10, 14, 17-18, and 22 are patentable under 35 U.S.C. §102(e) over Wee et al. (United States Patent No. 6,104,441, issued August 15, 2000, hereinafter referred to as Wee).

Whether claims 3-4, 7-8, 11-12, 15-16, 19-20 and 23-24 are patentable under 35 U.S.C. §103(a) over Wee in view of Chen et al., United States Patent No. 5,917,830, issued June 29, 1999, (hereinafter referred to as Chen).

Whether claims 5, 13, and 21 are objectionable as being dependent upon a rejected base claims 1, 9, and 17.

GROUPING OF CLAIMS

The rejected claims were grouped together by the Examiner according to the ground for rejection. Appellant urges that each of the rejected claims stands on its own recitations and are separately patentable for reasons set forth in detail below.

THE REFERENCES

The following references are relied on by the Examiner:

Inventor	Patent	Issue Date
Wee et al.	U.S. Patent No. 6,104,441	August 15, 2000
Chen et al.	U. S. Patent No. 5,917,830	June 29, 1999

BRIEF DESCRIPTION OF THE REFERENCES

Wee teaches an image editing system that permits various manipulations of compressed image formats without full decompression to the image domain (image frames). See the Abstract of Wee and column 3, lines 62-64. An editor selects a temporal location within a sequence where images are to be cut or reordered. See Wee, column 3, lines 57-60. The sequences consist of an image sequence that has been dequantized and expanded to motion vector and discrete cosine transform based representations. See Wee, column 9, lines 29-34. The editor manipulates the discrete cosine transform ("DCT") coefficients and motion vectors to incorporate DCT representations of anchor frames upon which the dependent frame depends (or by decoding into the spatial domain). See the Abstract of Wee and column 4, lines 3-8. After conversion, the image frames can be reordered in the compressed domain without violating temporal dependencies. Wee specifically teaches that an image sequence is cut to leave remaining image frames which are then altered to eliminate dependencies upon the eliminated frames.

Wee also teaches splicing elementary streams together by eliminating temporal dependencies at the splice point. Wee identifies the affected frames for both image sequences and then encodes the affected frames to eliminate temporal dependencies. Wee discloses evaluating every image sequence to determine which frames are affected in order to remove the temporal dependencies of those frames.

Chen discloses a system of splicing a secondary packetized data stream, such as a commercial, with a primary packetized data stream, such as a network television program using a method in which decompression of the primary data stream is not required. When a start signal is received, a pre-splicing packet of the primary stream is determined. The pre-splicing packet is the packet closest to the start time which carries an anchor frame (e.g., I or P frame) start code. To prevent a potential discontinuity at the decoder, the pre-splicing packet is processed to discard the anchor frame data, and to insert a number of stuffing bytes (the same number as that discarded) into an adaptation field of the pre-splicing packet. To further maintain continuity at the decoder,

identifying data of the primary stream such as PID and PSI data, is retrieved and provided to the secondary stream. A number of null packets are inserted into the resulting output stream at the transition point between the primary packetized data stream and the secondary packetized data stream. The null packets prevent a buffer overflow at a decoder which receives the output stream.

ARGUMENTS

THE ISSUES UNDER 35 U.S.C. § 102(e)

It is submitted that claims 1-2, 6, 9-10, 14, 17-18, and 22 are allowable over Wee when Wee and those claims are properly understood.

35 U.S.C. § 102(e) - Claim 1

Paragraph 3 of a Final Office Action dated May 30, 2003 rejected claim 1 under 35 U.S.C. §102(e) as being anticipated by Wee (specifics are presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Independent claim 1 recites identifying at least one out-frame within a transport stream, with that out-frame representing a last frame that is to be included in a spliced transport stream. Claim 1 further recites decoding a portion of the transport stream around the out-frame (including the out-frame) and then re-encoding the decoded portion to produce an out-point adapter having a predefined terminating out-point condition.

The Examiner alleged that Wee discloses a system for processing transport streams comprising a controller (Figure 4) for identifying at least one (out/in) frame within a transport stream, a decoder for decoding each identified (out/in) frame, a respective portion of the transport stream including the (out/in) frame, and an encoder for re-encoding each decoded portion of the transport stream to produce a respective (out/in)-point adapter.

However, the Examiner is incorrect. Wee does not identifying an out-frame within a transport stream as asserted by the Examiner. Supporting text for Figure 4 of

Wee discloses that the sequence being manipulated is not a transport stream, but rather it is an image sequence that has been dequantized and expanded to motion vectors and discrete cosine transform based representations prior to identifying a cut point. Thus, Wee does not select a last frame in a transport stream as claimed, but rather selects a temporal point in the sequence represented by motion vectors and cosine transform based representations. Since the apparatus of Figure 4 of Wee does not operate on a transport stream, Wee also does not support decoding a transport stream around an out-frame, nor does Wee support forming a splice adaptor on an end of the transport stream. Indeed, Wee does not form any adaptor at all, but rather teaches working with the dequantized and expanded image sequence to eliminate forward dependencies past the cut. See Wee at column 9, lines 33-55.

The Appellant directs the Board's attention to the fact that Wee fails to teach or suggest the novel concepts of identifying an out-frame within a transport stream, decoding the identified out-frame and a portion of the transport stream, and re-encoding the decoded portion to produce a respective out-point adapter having a predefined terminating out-point condition, all of which are recited in claim 1. Appellant respectfully submits that claim 1 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 1 reads:

1. A method for generating a splice point adapter, comprising the steps of:
 - identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;
 - decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and
 - re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

35 U.S.C. § 102(e) - Claim 2

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 2 under 35 U.S.C. §102(e) as being anticipated by Wee (specifics are presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Dependent claim 2 recites identifying at least one in-frame within a transport stream, with that in-frame representing a first spliced frame. Claim 2 further recites decoding the transport stream around the in-frame (including the in-frame) and re-encoding the decoded portion to produce an in-point adapter having a predefined initial in-point condition.

Dependent claim 2 depends directly from allowable claim 1 and recites additional features. Since Wee fails to anticipate claim 1, Appellant submits that dependent claim 2 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102(e) and is patentable thereunder.

Additionally, the Examiner's position that Wee discloses an in-frame in a transport stream is, as was discussed previously, incorrect. Wee discloses that the sequence being manipulated is not a transport stream, but rather it is a sequence that has been dequantized and expanded to motion vectors and discrete cosine transform based representations prior to identifying a cut point. Further, that cut-point is temporal based and not related to a frame. Thus, Wee does not identify an in-frame within a transport stream, and consequently Wee does not teach decoding the transport stream around an in-frame, nor does Wee teach an adaptor on the transport stream. As discussed previously, Wee does not form any adaptor, and thus does not teach an in-point adapter having a predefined initial in-point condition. Appellant respectfully submits that claim 2 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 2 reads:

2. The method of claim 1, further comprising the steps of:

identifying at least one in-frame within said transport stream, said in frame representing a first frame of said transport stream to be included in a spliced transport stream;

decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and

re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.

35 U.S.C. § 102(e) - Claim 6-

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 6 of the subject application under 35-U.S.C. §102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Dependent claim 6 recites that the portion of the transport stream that is decoded is done so by decoding, in display order, the in frame and all of the non I frames following the in-frame to a next I frame.

Dependent claim 6 depends directly from allowable claim 1 and recites additional features. Since Wee fails to anticipate claim 1, Appellant submits that dependent claim 6 is not anticipated by Wee and as such claim 6 fully satisfies the requirements of U.S.C. §102(e) and is patentable.

Additionally, as previously discussed, Wee does not teach identifying an in-frame within a transport stream, and thus Wee cannot teach decoding, in display order, the in-frame and all of the non I frames following the in-frame to a next I frame. Appellant respectfully submits that claim 6 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 6 reads:

6. The method of claim 1, wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of: decoding, in display order, said in-frame and all non I frames following said in frame up to a next I frame.

35 U.S.C. § 102(e) - Claim 9

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 9 of the subject application under 35 U.S.C. §102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Independent claim 9 recites a method for generating a splice point adapter that includes identifying an in-frame within a transport stream, where the in-frame represents a first frame of a transport stream that is to be included in a spliced transport

stream. Claim 9 further recites decoding the in-frame and a respective portion of the transport stream and re-encoding the decoded portion to produce a respective in-point adapter having a predefined initial in-point condition.

As noted above, the Examiner's position that Wee discloses identifying an in-frame in a transport stream is incorrect. Wee discloses that the sequence being manipulated is not a transport stream, but rather it is a sequence that has been dequantized and expanded to motion vectors and discrete cosine transform based representations prior to identifying a cut point. Wee does not identify an in-frame in a transport stream, and thus Wee does not teach decoding the transport stream around the in-frame, nor fitting an adaptor on the transport stream. Furthermore, as discussed previously, Wee does not form any adaptor at all, and thus cannot teach an in-point adapter having a predefined initial in-point condition. Appellant respectfully submits that claim 9 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 9 reads:

9. A method for generating a splice point adapter, comprising the steps of:
 - identifying at least one in-frame within a transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;
 - decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and
 - re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.

35 U.S.C. § 102(e) - Claim 10

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 10 of the subject application under 35 U.S.C. 102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Claim 10 recites a method for generating a splice point adapter that includes identifying an out-frame within a transport stream, where the out-frame represents a last frame of the transport stream that is to be included in a spliced transport stream.

Claim 10 further recites decoding the out-frame and a respective portion of the transport stream and re-encoding the decoded portion to produce a respective out-frame adapter having a predefined terminating out-point condition.

Dependent claim 10 depends directly from allowable claim 9 and recites additional features. Since Wee fails to anticipate claim 9, Appellant submits that dependent claim 10 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. § 102(e) and is patentable thereunder.

Furthermore, as noted above, the Examiner's position that Wee discloses identifying an out-frame in a transport stream is incorrect. Wee operates on an image sequence that has been dequantized and expanded into motion vectors and discrete cosine transform based representations prior to identifying any cut points. Wee does not identify an out-frame in a transport stream, and thus does not teach decoding the transport stream around the out-frame, nor the fitting of an adaptor on the transport stream. Furthermore, as discussed previously, since Wee does not form any adaptor at all, Wee does not teach an out-frame adapter having a predefined terminating out-point condition. Appellant respectfully submits that claim 10 is not anticipated by the teachings of Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 10 reads:

10. The method of claim 9, further comprising the steps of:
 - identifying at least one out-frame within said transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;
 - decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and
 - re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

35 U.S.C. § 102(e) - Claim 14-

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 14 of the subject application under 35 U.S.C. 102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection

is traversed.

Claim 14 recites decoding, in display order, the in-frame and all non-I-frames following the in-frame up to a next I-frame.

Dependent claim 14 depends directly from allowable claim 9 and recites additional features. Since Wee fails to anticipate claim 9, Appellant submits that dependent claim 14 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102(e) and is patentable thereunder.

Furthermore, as noted above, the Examiner's position that Wee discloses identifying an in-frame in a transport stream is incorrect. Wee operates on an image sequence that has been dequantized and expanded into motion vectors and discrete cosine transform based representations prior to identifying any cut points. Consequently, Wee does not teach decoding in display order, an in-frame and all non-I-frames following the in-frame up to a next I-frame. Appellant respectfully submits that claim 14 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 14 reads:

14. The method of claim 9, wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of: decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame.

35 U.S.C. § 102(e) - Claim 17-

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 17 of the subject application under 35 U.S.C. 102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Independent claim 17 recites an apparatus for generating a splice point adapter. That apparatus includes a controller for identifying an out-frame within a transport stream, where the out-frame represents the last frame of a spliced transport stream. The apparatus further includes a decoder that is responsive to the controller and that decodes the out-frame along with a portion of the transport stream. Furthermore, claim 17 recites that an encoder re-encodes the decoded portion to produce a respective an

out-point adapter having a predefined terminating out-point condition.

As noted above, the Examiner's position that Wee discloses identifying an out-frame in a transport stream is incorrect. Wee operates on an image sequence that has been dequantized and expanded into motion vectors and discrete cosine transform based representations prior to identifying any cut points. Consequently, Wee does not identify an out-frame in a transport stream, or the decoding of a transport stream around the out-frame, or the fitting of an adaptor on the transport frame. Furthermore, as discussed previously, since Wee does not form any adaptor at all, Wee does not teach an out-point adapter having a terminating out-point condition. Appellant respectfully submits that claim 17 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. § 102 and is patentable thereunder.

Specifically, Appellant's independent claim 17 reads:

17. In a system for processing transport streams, apparatus for generating a splice point adapter comprising:
 - a controller, for identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;
 - a decoder, responsive to said controller, for decoding each identified out-frame, a respective portion of said transport stream including said out-frame; and
 - an encoder, for re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

35 U.S.C. § 102(e) - Claim 18-

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 18 of the subject application under 35 U.S.C. §102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Claim 18 recites that a controller associates each out-point within a respective transport stream with an out-point adaptor, and where, when concatenating an additional transport stream, the decoded portion of the transport stream proximate the particular out-point is replaced by the out-point adapter associated with the particular out-point.

Dependent claim 18 depends directly from allowable claim 17 and recites additional features. Since Wee fails to anticipate claim 17, Appellant submits that dependent claim 18 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102(e) and is patentable thereunder.

Furthermore, as noted above, the Examiner's position that Wee discloses associating an out-point in a transport stream with an out-point adaptor is incorrect. Wee operates on an image sequence that has been dequantized and expanded into motion vectors and discrete cosine transform based representations prior to identifying any cut points. Consequently, Wee does not teach identifying any frame in the transport stream or associate any out-point in a transport stream with an out-point adaptor. Thus an out-point adaptor cannot replace a decoded portion of the transport stream. Furthermore, as discussed previously, Wee does not form any adaptor at all. Appellant respectfully submits that claim 18 is not anticipated by Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 18 reads:

18. The apparatus of claim 17, wherein:

said controller associates each out-point with a respective out-point adapter, wherein, in the case of concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

35 U.S.C. § 102(e) - Claim 22-

Paragraph 3 of the Final Office Action dated May 30, 2003 rejected claim 22 of the subject application under 35 U.S.C. §102(e) as being anticipated by Wee (specifics were presented in paragraph 6 of an Office Action dated March 1, 2001). That rejection is traversed.

Claim 22 recites that the controller causes the decoder to decode, in display order, the in-frame and all non-I-frames following the in-frame up to the next I-frame.

Dependent claim 22 depends directly from allowable claim 17 and recites additional features. Since Wee fails to anticipate claim 17, Appellant submits that dependent claim 22 is not anticipated by Wee and, as such, fully satisfies the

requirements of U.S.C. §102(e) and is patentable thereunder.

Furthermore, as noted above, the Examiner's position that Wee discloses identifying an in-frame in a transport stream is incorrect. Wee operates on an image sequence that has been dequantized and expanded into motion vectors and discrete cosine transform based representations prior to identifying any cut points. Consequently, Wee does not suggest having a controller cause a decoder to decode, in display order, the in-frame and all non-I-frames following the in-frame up to the next I-frame. Appellant respectfully submits that claim 22 is not anticipated by the teachings of Wee and, as such, fully satisfies the requirements of U.S.C. §102 and is patentable thereunder.

Specifically, Appellant's independent claim 22 reads:

22. The apparatus of claim 17, wherein said controller causes said decoder to decode, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame to provide said portion of transport stream including said in-frame to be decoded.

THE ISSUES UNDER 35 U.S.C. § 103

It is submitted that a reasonable interpretation of the referenced teachings does not render the invention recited in Appellant's claims 3-4, 7-8, 11-12, 15-16, 19-20 and 23-24 obvious.

In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776

F.2d 281 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. Denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp. 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

35 U.S.C. § 103 - Claim 3

The Examiner rejected claim 3 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 3 depends from allowable claim 1 and recites additional features therefor. That Wee does not anticipate claim 1 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame, and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claim 1 of Appellant's invention, Appellant respectfully submits that dependent claim 3 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Dependent claim 3 recites associating an out-point with a respective out-point adapter so that when concatenating an additional transport stream to the transport stream at a particular out-point the decoded portion proximate the particular out-point is replaced by the out-point adapter associated with the particular out-point. Since neither Wee nor Chen disclose either in-point or out-point adaptors, no permissible combination of Wee or Chen would suggest associating an out-point with a respective out-point adapter, or replacing a decoded portion proximate the out-point with an out-point adaptor. As such, Appellant respectfully submits that claim 3 is not made obvious

by the teachings of Wee and Chen, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's independent claim 3 reads:

3. The method of claim 1, further comprising the step of:
associating each out-point with a respective out-point adapter,
wherein, in the case of concatenating an additional transport stream to said
transport stream at a particular out-point, said decoded portion of said transport
stream proximate said particular out-point is replaced by said out-point adapter
associated with said particular out-point.

35 U.S.C. § 103 - Claim 4

The Examiner rejected claim 4 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 4 depends from allowable claims 1 and 2 and recites additional features therefore. That Wee does not anticipate claims 1 and 2 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claims 1 and 2, Appellant respectfully submits that dependent claim 4 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Dependent claim 4 recites associating an in-point with a respective in-point adapter so that when concatenating an additional transport stream to the transport stream at a particular in-point the decoded portion proximate the particular in-point is replaced by the in-point adapter associated with the particular in-point. Since neither Wee nor Chen disclose either in-point or out-point adaptors no permissible combination of Wee or Chen would suggest associating an in-point with a respective in-point

adapter or replacing a decoded portion proximate the in-point with an in-point adaptor. As such, Appellant respectfully submits that claim 4 is not made obvious by the teachings of Wee and Chen, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's independent claim 4 reads:

4. The method of claim 2, further comprising the step of:
associating each in-point with a respective in-point adapter,
wherein, in the case of a concatenating said transport stream to an additional
transport stream at a particular in-point, said decoded portion of said transport
stream proximate said particular in-point is replaced by said in-point adapter
associated with said particular in-point.

35 U.S.C. § 103 - Claim 7

The Examiner rejected claim 7 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 7 depends from allowable claims 1 ands 2 and recites additional features therefore. That Wee does not anticipate claims 1 and 2 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claims 1 and 2, Appellant respectfully submits that dependent claim 7 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. § 103 and is patentable thereunder. As such, Appellant respectfully submits that claim 7 is not made obvious by the teachings of Wee and Chen, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder

Specifically, Appellant's claim 7 reads:

7. The method of claim 2, further comprising the step of indexing each of said transport stream, said step of indexing comprising the steps of:
 - parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and
 - determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS).

35 U.S.C. § 103 - Claim 8

The Examiner rejected claim 8 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 8 depends from allowable claims 1, 2, and 7 and recites additional features therefore. That Wee does not anticipate claims 1, 2, and 7 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claims 1, 2, and 7 Appellant respectfully submits that dependent claim 7 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's claim 8 reads:

8. The method of claim 7, wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream.

35 U.S.C. § 103 - Claim 11

The Examiner rejected claim 11 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is

respectfully traversed.

Dependent claim 11 depends from allowable claims 9 and 10 and recites additional features therefore. That Wee does not anticipate claims 9 and 10 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest Appellant's claims 9 and 10, Appellant respectfully submits that dependent claim 11 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Dependent claim 11 recites associating an out-point with a respective out-point adapter so that when concatenating an additional transport stream to the transport stream at a particular out-point the decoded portion proximate the particular out-point is replaced by the out-point adapter associated with the particular out-point. Since neither Wee nor Chen disclose either in-point or out-point adaptors, no permissible combination of Wee or Chen would suggest associating an out-point with a respective out-point adapter, or replacing a decoded portion proximate the out-point with an out-point adaptor. As such, Appellant respectfully submits that claim 11 is not made obvious by the teachings of Wee and Chen, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's independent claim 11 reads:

11. The method of claim 10, further comprising the step of: associating each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

35 U.S.C. § 103 - Claim 12

The Examiner rejected claim 12 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 12 depends from allowable claim 9 and recites additional features therefore. That Wee does not anticipate claims 9 and 10 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest Appellant's claim 9, Appellant respectfully submits that dependent claim 12 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Dependent claim 12 recites associating an in-point with a respective in-point adapter so that when concatenating an additional transport stream to the transport stream at a particular in-point the decoded portion proximate the particular in-point is replaced by the in-point adapter associated with the particular in-point. Since neither Wee nor Chen disclose either in-point or out-point adaptors, no permissible combination of Wee or Chen would suggest associating an in-point with a respective in-point adapter, or replacing a decoded portion proximate the in-point with an in-point adaptor. As such, Appellant respectfully submits that claim 12 is not made obvious by the teachings of Wee and Chen, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's independent claim 12 reads:

12. The method of claim 9, further comprising the step of:
associating each in-point with a respective in-point adapter,
wherein, in the case of a concatenating said transport stream to an additional
transport stream at a particular in-point, said decoded portion of said transport
stream proximate said particular in-point is replaced by said in-point adapter

associated with said particular in-point.

35 U.S.C. § 103 - Claim 15

The Examiner rejected claim 15 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 15 depends from allowable claim 9 and recites additional features therefore. That Wee does not anticipate claim 9 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claim 9, Appellant respectfully submits that dependent claim 15 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder. As such, Appellant respectfully submits that claim 15 is not made obvious by the teachings of Wee and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's claim 15 reads:

15. The method of claim 9, further comprising the step of indexing each of said transport stream, said step of indexing comprising the steps of:
parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and
determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS).

35 U.S.C. § 103 - Claim 16

The Examiner rejected claim 16 in paragraph 4 of the Final Office Action under

35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 16 depends from allowable claims 9 and 15 and recites additional features therefore. That Wee does not anticipate claims 9 and 10 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claims 9 and 15 Appellant respectfully submits that dependent claim 16 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's claim 16 reads:

16. The method of claim 15, wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream.

35 U.S.C. § 103 - Claim 19

The Examiner rejected claim 19 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 19 depends from allowable claim 17 and recites additional features therefore. That Wee does not anticipate claim 17 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced

with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest Appellant's claim 17, Appellant respectfully submits that dependent claim 19 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Dependent claim 19 recites a controller that associates an out-point with a respective out-point adapter so that when concatenating an additional transport stream to the transport stream at a particular out-point the decoded portion proximate the particular out-point is replaced by the out-point adapter associated with the particular out-point. Since neither Wee nor Chen disclose either in-point or out-point adaptors, no permissible combination of Wee or Chen would suggest a controller that associates an out-point with a respective out-point adapter, or replacing a decoded portion proximate the out-point with an out-point adaptor. As such, Appellant respectfully submits that claim 19 is not made obvious by the teachings of Wee and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's independent claim 19 reads:

19. The apparatus of claim 17, wherein:

 said controller associates each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

35 U.S.C. § 103 - Claim 20

The Examiner rejected claim 20 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 20 depends from allowable claims 17 and 18 and recites additional features therefore. That Wee does not anticipate claims 17 and 18 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a

spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest Appellant's claims 17 and 18, Appellant respectfully submits that dependent claim 20 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Dependent claim 20 recites a controller for associating an in-point with a respective in -point adapter so that when concatenating an additional transport stream to the transport stream at a particular in-point the decoded portion proximate the particular in-point is replaced by the in-point adapter associated with the particular in-point. Since neither Wee nor Chen disclose either in-point or out-point adaptors, no permissible combination of Wee or Chen would suggest a controller for associating an in-point with a respective in-point adapter, or replacing a decoded portion proximate the in-point with an in-point adaptor. As such, Appellant respectfully submits that claim 20 is not made obvious by the teachings of Wee and, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder.

Specifically, Appellant's independent claim 20 reads:

20. The apparatus of claim 18, wherein:

said controller associates each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

35 U.S.C. § 103 - Claim 23

The Examiner rejected claim 23 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 23 depends from allowable claims 17 ands 18 and recites

additional features therefore. That Wee does not anticipate claims 17 and 18 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claims 17 and 18, Appellant respectfully submits that dependent claim 23 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. § 103 and is patentable thereunder. Appellant respectfully submits that claim 23 is not made obvious by the teachings of Wee and Chen, as such, fully satisfies the requirements of U.S.C. §103 and is patentable thereunder

Specifically, Appellant's claim 23 reads:

23. The apparatus of claim 18, wherein:

 said controller parses a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

 said controller determines, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, and presentation time stamp (PTS) and a decode time stamp (DTS).

35 U.S.C. § 103 - Claim 24

The Examiner rejected claim 24 in paragraph 4 of the Final Office Action under 35 U.S.C. §103 as being unpatentable over the Wee in view of Chen. The rejection is respectfully traversed.

Dependent claim 24 depends from allowable claims 17, 18, and 23 and recites additional features therefore. That Wee does not anticipate claims 17, 18, and 23 is discussed above. Further, Chen does nothing to bridge the substantial gap between the subject invention and Wee. In particular, Chen does not disclose identifying an out-frame or an in-frame that represents a last or a first frame that is to be included in a

spliced transport stream. Rather, Chen discloses identifying a "pre-splice" packet of an anchor frame ("I" or "P") that is near the splice point. That anchor frame is discarded (not kept) and replaced with "stuffing" bytes. Thus, Chen does not decode an out-frame or an in-frame and does not teach re-encoding that frame to have a splice point adaptor. Since Wee and Chen fail to teach or suggest claims 17, 18, and 23, Appellant respectfully submits that dependent claim 24 is also not made obvious by the teachings of Wee and Chen and, as such, fully satisfies the requirements of U.S.C. § 103 and is patentable thereunder.

Specifically, Appellant's claim 24 reads:

24. The apparatus of claim 23, further comprising:
a memory, for storing within a meta file said controller determinations for each frame in said transport stream, said meta file intended for subsequent use in generating a transition stream.

ALLOWABLE SUBJECT MATTER

The attention of the Board of Appeals is directed to the allowable subject matter found in claims 5, 13, and 21. As Appellant believes that all of the pending claims are allowable, at this time the Appellant does not wish to amend claims 5, 13, and 21 to overcome existing objections. However, Appellant reserves the right to do so in the future.

CONCLUSION

For the reasons advanced above, Appellant respectfully urges that claims 1-2, 6, 9-10, 14, 17-18, and 22 are patentable under 35 U.S.C. §102(e). Reversal of the rejection is respectfully requested.

For the reasons advanced above, Appellant respectfully urges that claims 3-4, 7-8, 11-12, 15-16, 19-20 and 23-24 are patentable under 35 U.S.C. §103. Reversal of the rejection is respectfully requested.

For the reasons advanced above, Appellant respectfully urges that claims 5, 13, and 21 are patentable as they depend from allowable base claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. If necessary, please charge any shortage in fees due in

connection with the filing of this paper, including extension of time fees, to Deposit Account 20-0782 and please credit any excess fees to such deposit account.

Respectfully submitted,

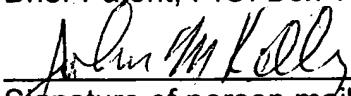
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John M. Kelly

Name of person mailing paper or fee

APPENDIX OF CLAIMS INVOLVED IN APPEAL

1. A method for generating a splice point adapter, comprising the steps of:
identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;
decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and
re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.
2. The method of claim 1, further comprising the steps of:
identifying at least one in-frame within said transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;
decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and
re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.
3. The method of claim 1, further comprising the step of:
associating each out-point with a respective out-point adapter, wherein, in the case of concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.
4. The method of claim 2, further comprising the step of:
associating each in-point with a respective in-point adapter, wherein, in the case

of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

5. The method of claim 1, wherein said decoded portion of said transport stream including said out-frame comprises said out-frame and all preceding frames, in display order, from said out-frame to a prior I-frame;

in the case of said out-frame comprising a B-frame, defining the frame immediately preceding said prior I-frame in transmission order as a final first transport stream frame in said transition stream; and

in the case of said out-frame not comprising a B-frame, defining said out-frame as said final first transport stream frame in said transition stream.

6. The method of claim 1, wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of:

decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame.

7. The method of claim 2, further comprising the step of indexing each of said transport stream, said step of indexing comprising the steps of:

parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS).

8. The method of claim 7, wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream.

9. A method for generating a splice point adapter, comprising the steps of:
 - identifying at least one in-frame within a transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;
 - decoding, for each identified in-frame, a respective portion of said transport stream including said in-frame; and
 - re-encoding each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.
10. The method of claim 9, further comprising the steps of:
 - identifying at least one out-frame within said transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;
 - decoding, for each identified out-frame, a respective portion of said transport stream including said out-frame; and
 - re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.
11. The method of claim 10, further comprising the step of:
 - associating each out-point with a respective out-point adapter, wherein, in the case of a concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.
12. The method of claim 9, further comprising the step of:
 - associating each in-point with a respective in-point adapter, wherein, in the case

of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

13. The method of claim 10, wherein said decoded portion of said transport stream including said out-frame comprises said out-frame and all preceding frames, in display order, from said out-frame to a prior I-frame;

in the case of said out-frame comprising a B-frame, defining the frame immediately preceding said prior I-frame in transmission order as a final first transport stream frame in said transition stream; and

in the case of said out-frame not comprising a B-frame, defining said out-frame as said final first transport stream frame in said transition stream.

14. The method of claim 9, wherein said portion of transport stream including said in-frame to be decoded is determined according to the steps of:

decoding, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame.

15. The method of claim 9, further comprising the step of indexing each of said transport stream, said step of indexing comprising the steps of:

parsing a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

determining, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, a presentation time stamp (PTS) and a decode time stamp (DTS).

16. The method of claim 15, wherein said determinations for each frame are stored in a meta file for subsequent use in generating a transition stream.

17. In a system for processing transport streams, apparatus for generating a splice point adapter comprising:

a controller, for identifying at least one out-frame within a transport stream, said out-frame representing a last frame of said transport stream to be included in a spliced transport stream;

a decoder, responsive to said controller, for decoding each identified out-frame, a respective portion of said transport stream including said out-frame; and

an encoder, for re-encoding each decoded portion of said transport stream to produce a respective out-point adapter, each of said out-point adapters including a predefined terminating out-point condition.

18. The apparatus of claim 17, wherein:

said controller identifies at least one in-frame within said transport stream, said in-frame representing a first frame of said transport stream to be included in a spliced transport stream;

said decoder decodes, for each identified in-frame, a respective portion of said transport stream including said in-frame; and

said encoded re-encodes each decoded portion of said transport stream to produce a respective in-point adapter, each of said in-point adapters including an predefined initial in-point condition.

19. The apparatus of claim 17, wherein:

said controller associates each out-point with a respective out-point adapter, wherein, in the case of concatenating an additional transport stream to said transport stream at a particular out-point, said decoded portion of said transport stream proximate said particular out-point is replaced by said out-point adapter associated with said particular out-point.

20. The apparatus of claim 18, wherein:

said controller associates each in-point with a respective in-point adapter, wherein, in the case of a concatenating said transport stream to an additional transport stream at a particular in-point, said decoded portion of said transport stream proximate said particular in-point is replaced by said in-point adapter associated with said particular in-point.

21. The apparatus of claim 17, wherein said decoded portion of said transport stream including said out-frame comprises said out-frame and all preceding frames, in display order, from said out-frame to a prior I-frame;

in the case of said out-frame comprising a B-frame, said controller defines the frame immediately preceding said prior I-frame in transmission order as a final first transport stream frame in said transition stream; and

in the case of said out-frame not comprising a B-frame, said controller defines said out-frame as said final first transport stream frame in said transition stream.

22. The apparatus of claim 17, wherein said controller causes said decoder to decode, in display order, said in-frame and all non-I-frames following said in-frame up to a next I-frame to provide said portion of transport stream including said in-frame to be decoded.

23. The apparatus of claim 18, wherein:

said controller parses a transport layer of said transport stream to identify packets associated with at least one of sequence headers, picture headers and predefined splicing syntax; and

said controller determines, for each frame in said transport stream, at least one of a picture number, a picture coding type, a start of frame transport packet number, an end of frame transport packet number, and

presentation time stamp (PTS) and a decode time stamp (DTS).

24. The apparatus of claim 23, further comprising:

a memory, for storing within a meta file said controller determinations for each frame in said transport stream, said meta file intended for subsequent use in generating a transition stream.